DOCUMENT RESUME

ED 210 162 SE 035 838

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TITLE Project LOCATE: An Individually Guided Plan for Elementary Science Education Field Experiences.
INSTITUTION Indiana State Univ., Evansville.
PUB DATE Apr 81
NOTE 15p.; Paper presented at the National Meeting of the Association for Education of Teachers in Science (New York, NY, April 4, 1981). Contains occasional light and broken type.

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Course Descriptions; Elementary Education; *Elementary School Science; *Field Experience Programs; Higher Education; *Individualized Instruction; *Preservice Teacher Education; *Program Descriptions; Program Evaluation; Science Education; Science Instruction; Teacher Education Curriculum

ABSTRACT

The development and operation of an individually guided elementary science education program are described. With the program, a basic set of preteaching activities are presented. Lesson planning, behavioral objectives, management objectives, and evaluation topics are studied in the university setting. Field experiences include classroom teacher interaction with students including what topics will be taught by the preservice teachers. The field experience is evaluated via written reports and an audio-tape teaching situation. Program evaluation on student and teacher feedback is included. (Author/DS)

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PROJECT LOCATE:

AN INDIVIDUALLY GUIDED PLAN FOR ELEMENTARY SCIENCE EDUCATION FIELD EXPERIENCES

Prepared for:
Association for Education of Teachers in Science
National Meeting
New York, New York
April 4, 1981

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ABSTRACT

PROJECT LOCATE: An Individually Guided Plan For Elementary Science Education Field Experiences

Most national and state accreditation agencies are requesting an increase in field experience contact hours for teacher education programs. Existing scheduling conflicts and the availability of elementary school students nearby the university often make the arrangement of field experiences for an entire group of preservice teachers virtually impossible.

The development and operation of an individually guided science education program is described. With the program, a basic set of preteaching activities are followed. Lesson planning, behavioral objectives, management objectives, and evaluation topics are studied in the university setting. For the actual field experiences, students negotiate with classroom teachers in regards to topics and teaching dates. The field experience is evaluated via written reports and an audio tape of a teaching situation.

Program evaluation based on student and teacher feedback is included in the report.

INTRODUCTION

In the past decade, a significant national trend in preservice teacher education has been toward the inclusion of increasing amounts of field experiences. In many states, revised teacher education programs have mandated such an approach. The Teacher Education Advisory Council, State of Indiana, in the Teacher Education and Certification Handbook (TEACH, 1976) states that its goal is "to improve the instruction, school services and administration of the schools in the state by ensuring the availability of competent personnel" (p. 1). One way of achieving this goal is by "requiring that students enrolled in a teacher education program have multiple opportunities to observe and participate in realistic teaching situations" (p. 1).

Indiana State University Evansville, in response to TEACH, has incorporated field experiences throughout the preservice teaching program. Many prospective teachers record in excess of eighty hours pre-student teaching experience (Teacher Certification Patterns for TEACH (1977).

The desire to provide meaningful field experiences in the area of science education has lead to the development of PROJECT LOCATE, the program described herein. Particular constraints, some associated with the University and others related to needs of the student body, have been significant determinants in the development of PROJECT LOCATE. It is hoped that the act of sharing these ideas with others will lead to program refinement so as to continue to provide the best possible experiences for our future educators.

PROGRAM DEVELOPMENT

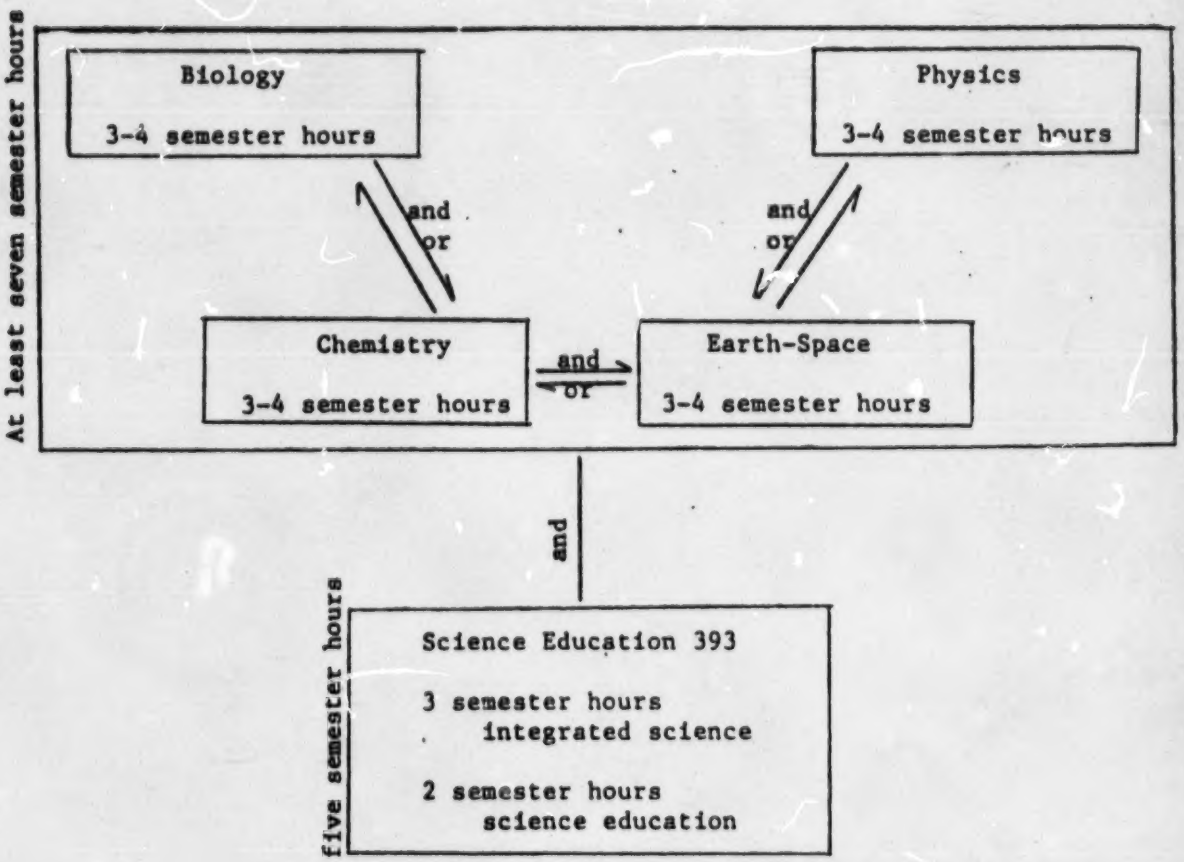
A. Course Description

Elementary school science education at Indiana State University Evansville (ISUE) is offered as a five semester hour block: two semester hours of methods in combination with three semester hours of science. From the Undergraduate Bulletin:

> 393 Science Education -- 5 Semester Hours
> A. Integrated Science: Three semester hours designed to integrate physical biological, and earth-space science concepts. The inter-relatedness of all areas of science is stressed and experiences in problem-solving using scientific methods are provided.
> B. Teaching of Science in the Elementary Schools: Two semester hours in study of methods and techniques used to teach science, studies related to testing and evaluation, instructional models, and performance and behavioral objectives. Field experiences with elementary school children are provided. It is strongly recommended that students have completed seven hours of science before enrolling in this course. (p. 134, 1980)

The ISUE plan for science education is shown in Figure 1. With science methods and science content combined into a five hour course offering, the opportunity to develop basic skills as well as to further science content understanding simultaneously is offered. The methods component of the course is intended to encompass social, philosophical, and historical foundations of science education, educational methodology, measurement and psychology, as well as the nature of the learning process, growth and development of the learner, and materials for instruction.

FIGURE 1: ISUE Science Education Plan



Total: At least ten semester hours science
two semester hours science education

B. Setting

Indiana State University Evansville has a full-time undergraduate enrollment of approximately 3,200 (Fall Semester, 1980). ISUE is a commuter campus; no student housing is available on site. The majority of students live in the Evansville Metropolitan area but some commute as far as 80 miles (one way) daily. Percentages of students commuting from various distances are shown in Table 1.

Table 1

*Percentage of Students Commuting From Various Distances

One Way Distance	Percentage
Less than 10 miles	33
Between 10 and 25 miles	28
Between 25 and 50 miles	22
More than 50 miles	17

*Based on random sample of 36 elementary education students, Winter Semester, 1981.

Due to the size of the institution most required education courses are offered only once each semester. General education courses are offered mostly during daytime hours.

C. Pilot Studies

Previous attempts to provide science education field experiences have met with moderate success. Previously, one class (N = 19) of preservice teachers instructed a group of elementary students in a science enrichment program on photography. Each student had responsibility for the instruction of specific objectives. Criticism of this method of field experience included the concerns that some students preferred working on different age levels, academic groups and with other topics;

and that students only actually taught a small amount of the time they were in the schools (more time was spent in observing others teach).

Other attempts to provide field experiences in science have encountered other difficulties: (a) Placement of students in one setting (school) has "saturated" the school and sometimes necessitated doubling up in classrooms and (b) Scheduling of students into a school on a common day and time has been virtually impossible due to conflicts of car pooling, work and class schedules.

In order to meet these concerns, an individually guided field experience program has been formulated.

PROGRAM DESCRIPTION

PROJECT LOCATE allows students to select the school and grade level in which they will have their field experiences. Many students arrange to have their field experiences on days when they do not usually commute to campus; thus they are saved from having to travel a considerable distance for a relatively brief period of time. Furthermore, by having the opportunity to select the site and grade level of the placement, some preservice teachers have been able to make "contact" in a particular school district in which they would like to be employed upon graduation.

A. Preparation

Although the concept of PROJECT LOCATE is introduced early in the term, students are not directed to make initial contacts until near the ninth week. By this time, learning activities concerning lesson planning, behavioral objectives, questioning, instructional strategies,

formative and summative evaluation, as well as the nature of the learning process have been experienced. Basic science process skill instruction has been completed and many science concepts have been studied. With this background, students can now better comprehend the components which constitute the field experience.

B. Task

Each science education student, in a field setting, is responsible for the planning, instruction, and evaluation of science lessons. Students are to have a minimum of 60 minutes contact time; most have 60-90 minutes. The time is usually divided into two or more days based on the desires of the classroom teacher. Most teachers specify the subject to be taught; others negotiate a topic with the student. Some students have experiences with a textbook based program; others work with curriculum improvement projects (ESS, S-APA, SCIS) while others' topics are based on "incidental" approaches -- SKYLAB (in the "news"), plants (because it's spring), etc. Data for the Fall Semester, 1980 science education students (N = 20) on these criteria are shown in Table 2 and Table 3.

Table 2

Selection of Science Topics

	Percentage
Specified by Classroom Teacher	70
Negotiated by Teacher and Student	20
Selected by Student	10

Table 3

Source of Science Topics

Textbooks	60
Curriculum Projects (ESS, S-APA, SCIS, etc.)	20
Incidental (current events, interests, etc.)	20

Over 90% of the science education students make their own placements with the instructor making the remainder. Some students want to work with a particular teacher whom they have known prior to this time. Informal (telephone) contacts may be made, but the initial contact in the school is made through the school's administrators.

Lesson plans must be approved by the university instructor and classroom teacher prior to the teaching of the activity. Plans include the statement of objectives in behavioral terms, methods and materials to be used, and provisions for formative evaluation (questions, checklists, etc.). Students are required to submit an audio tape of one session for analysis; many students tape all sessions.

C. Mechanics

The operation of PROJECT LOCATE is summarized by the following timetable. Dates shown are those used in Fall, 1980.

PROJECT LOCATE

Timetable

Date	Event
September 2	Fall Semester begins
October 20	Initial Contact -- first to Principal; then to Classroom Teacher
November 3	Return of Contract
November 7	Teaching of Activities (Plans must be approved first)
December 1	Last day to submit report (with tape) for evaluation
December 12	Fall Semester ends

Samples of the contact letter and contract are attached as an appendix to this report.

D. Evaluation

Students are evaluated based on their preparation (lesson plans) and the presentation of their activities. The evaluation of their activities is by analysis of the audio tape. The procedure has shortcomings; but since the instructor cannot be physically present to observe in the classroom, it does provide information on classroom interaction. Regardless of the teaching methodology utilized, questioning has an important role in the learning experience. The audio tape provides an opportunity to analyze question type, frequency, wait-time and follow-up. In addition, the pacing of the lesson and projection of the presenter can be determined.

E. Feedback from Participants

Participants (students and cooperating teachers) are asked to provide program evaluation. A written instrument is used for data gathering purposes.

Responses have been quite favorable. Student comments have included the following statements.

> "Working with kids was really great. This is the best part of a methods class."
>
> "I wanted to work in (name deleted) School because I had heard there is to be an opening there next year. Because of this experience I think that I may get it!"
>
> "Hearing myself on tape was really revealing."

Teachers and administrators have been supportive of PROJECT LOCATE. Over 95% classroom teachers indicate they would be willing to participate again. Most cite the experience as "rewarding." One teacher made the following statement:

> "I really enjoyed working with this college student. I think that seeing the enthusiasm of (name deleted) has caused me to become more excited about my science lessons. Maybe I need one of these every year or two."
>
> (Teacher Evaluations, Fall, 1980)

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Teacher Education and Certification Handbook (TEACH) Rules 46-47. Indianapolis, Indiana: State of Indiana, Division of Teacher Education and Certification, 1976.

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Dear Fellow Educator,

You may be aware of the commitment made by Indiana State University Evansville for prospective teachers to have classroom experiences as a part of their undergraduate training. Accordingly, students enrolled in science methods for elementary education (ED 393) are asked to teach a three lesson series in an elementary school setting.

Since many of our students commute a considerable distance, they are being allowed to arrange a teaching placement in their own locale. The specifics of the program are as follows:

1. The entire activity is to be 60-90 minutes of instruction, activities, discussion, etc., with elementary school children. Most students will plan three days at 20-30 minutes/day.

2. The teaching days may be consecutive or not, but the entire activity should be completed within ten days.

3. Students are to evaluate the pupils' achievement on the science unit.

4. The science topic for the lesson may be suggested by you, or if you prefer, selected by the ISUE student.

5. Lesson plans are approved by the university instructor prior to the teaching experience. If you care to do so, exercise your right to do the same.

6. ISUE students are asked to tape record at least one session; some may tape all. Students will provide their own tapes.

ISUE students are evaluated based on the preparation (lesson plans) and the teaching (audio tape) of their unit. You are encouraged to provide feedback on the science unit to the student.

Hopefully, this paper has answered many of your questions concerning this program. Should concerns arise, please call me at 812-464-1811.

Thank you for helping in this endeavor. It is our belief here at ISUE that field experiences such as this help us prepare future teachers.

Sincerely,

Charles L. Price

Charles L. Price, Ph.D.
Assistant Professor of Science Education
Division of Education

CLP/sb

CONTRACT

Science Education Field Experience

_____ will be working in the
(ISUE student)

classroom of _____ of _____
(cooperating teacher) (school name)

on _____. The topic to be taught is
(dates of activities)

_____
(lesson title or description of activity)

_____

Approvals:

The contract has been reviewed and meets with my approval.

_____ _____
ISUE Student Cooperating Teacher

_____ _____
ISUE Instructor Administrator of Field Experience School